

Statistical Methods

We employed separate Ordinary Least Squares (OLS) multiple regression models for the 250 cells in both male and female data sets, using the cell's row and column locations as two of the explanatory variables. With each regression model, we used clustered standard errors to address the fact that each of the 10 participants could provide 250 cell measurements for both horizontal and vertical pinch-tests, giving a total of 2500 observations for each pinch orientation. We averaged each cell's horizontal and vertical measurements to produce the dependent variable for our regression models. Cells with little to no subcutaneous fullness contained skin that was adherent to the underlying fascia, resulting in pinch values of zero. The calipers recorded pinch thicknesses in 2266 (90.6%) of the 2500 possible horizontal male measurements and 1800 (72.0%) of the vertical male measurements. Regarding female pinch-fullness, we could record thickness in 1236 (49.4%) of the horizontal measurements and 1162 (46.5%) of the vertical measurements. As the caliper's minimum possible pinch value was 0.2 mm, we substituted values of half this thickness (0.1 mm) for all zeros during our analysis, an action consistent with methods used in other disciplines to handle non-detects or measurements less than the smallest value the investigator's instrument can detect.²⁰ This practice is also employed in public health to model the relation between a health outcome and smoking behavior (amount, duration, and intensity), when "never smokers" are included in the study.²¹ This substitution induces a spike in the variable's distribution at whatever value is substituted. In the present study, the spike appeared at 0.1 mm. To address the impact of this, we included a dichotomous indicator equal to 0 when cell averages for which both horizontal and vertical measurements were obtained and equal to 1 when one of the two or neither of the measurements could be obtained.²²